

AR40

Great Lakes Paper

Annual Report 1974





The press in our new particleboard-waferboard plant, shown here nearing completion, is capable of exerting pressure of up to 750 pounds per square inch. A complete description of the plant appears at the back of this report.

COVER The forest means different things to those who share its use: the hunter, the fisherman, the camper, the nature lover and all who seek outdoor pleasure and recreation, as well as those, like our company, who derive economic gain by harvesting the tree crop. We firmly believe that through

co-operation and sound forest management these great renewable resources can continue to satisfy the needs of all such diverse groups. For our part, the roads we build provide access to the forest interior and, through our co-operative efforts with the Ontario Government, nature is given assistance

where necessary to generate new forests. Current studies will eventually lead to more complete use of tree species and materials now considered waste in the forest and at the mill. Particleboard is one example of the use of waste wood fibre.

HIGHLIGHTS OF '74

1. Net earnings in 1974 were \$14.9 million or \$4.14 a share versus \$7.6 million or \$2.11 a share in 1973.
2. A seven-week strike by our woodlands employees reduced earnings by about \$1.00 a share.
3. Net sales of \$114.4 million in 1974 were 23.3 percent higher than \$92.8 million in 1973.
4. Our diversification program made considerable progress in 1974 with virtual completion of the particleboard-waferboard plant and the initial stud mill expansion by year-end.
5. Construction of the new kraft pulp mill proceeded on schedule in 1974 towards an estimated completion date of mid-1976.

SCOREBOARD

1974 1973

'000 omitted

net sales: pulp and paper.....	\$110,977	\$92,237
building products.....	3,465	584
total.....	114,442	92,821
operating profit.....	35,441	21,360
earnings before income taxes.....	26,625	13,161
income taxes.....	11,687	5,540
NET EARNINGS: total amount.....	14,938	7,621
per share.....	4.14	2.11
cash flow.....	30,778	14,843
expenditures on fixed assets.....	49,997	12,137
working capital at year-end.....	2,726	14,190

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Dollars in this report are Canadian unless otherwise identified. Amounts per share are based on total shares issued up to the end of the respective year.

Ten-year financial and shipment summaries are shown on pages 21, 22 and 23.

Board of Directors at December 31, 1974

C. R. BOWLES	Thunder Bay	1964
<i>treasurer and comptroller, Great Lakes Paper Company</i>		
KEITH CAMPBELL	Montreal	1971
<i>vice-president, Canadian Pacific Limited</i>		
*C. J. CARTER	Thunder Bay	1947
<i>president, Great Lakes Paper Company</i>		
*PERCY M. FOX	Bermuda	1952
<i>chairman of the board, Great Lakes Paper Company</i>		
C. J. JEFFERY	Thunder Bay	1947
<i>executive vice-president, Great Lakes Paper Company</i>		
*IRWIN MAIER	Milwaukee, Wisconsin	1968
<i>chairman, The Journal Company (publishers of The Milwaukee Journal)</i>		
C. BLAKE McDOWELL	Akron, Ohio	1952
<i>director, Knight-Ridder Newspapers, Inc.</i>		
*R. G. MEECH, Q.C.	Toronto	1936
<i>barrister and solicitor</i>		
B. H. RIDDER, JR.	St. Paul, Minnesota	1957
<i>vice-chairman of the board, Knight-Ridder Newspapers, Inc.</i>		
MURRAY D. SEELEY	Thunder Bay	1956
<i>executive vice-president, Great Lakes Paper Company</i>		
*IAN D. SINCLAIR	Montreal	1969
<i>chairman and chief executive officer, Canadian Pacific Limited</i>		
W. J. STENASON	Montreal	1972
<i>executive vice-president, Canadian Pacific Investments Limited</i>		
G. GORDON STRONG	Canton, Ohio	1968
<i>chairman of the board, Thomson Newspapers, Inc.</i>		

*Members of the Executive Committee.

Years denote beginning of connection with the company.

Our Company

The Great Lakes Paper Company, Limited was incorporated under the laws of Ontario in 1936. We manufacture newsprint paper, bleached kraft pulp, unbleached sulphite pulp and stud lumber and will soon commence producing particleboard and waferboard. Our mill and head office are at Thunder Bay, Ontario. Mailing address: Box 430, Thunder Bay, Ont., P7C 4W3.

Newsprint Services

Lake Superior Newsprint Co., Chicago, servicing of newsprint paper contracts: BRUCE FALLOWS, *president*; W. D. FROST, J. H. NETHERLAND and O. E. BABCOCK, *vice-presidents*.

Sale of Pulp

Lake Superior Pulp & Paper Inc., Chicago and White Plains, N.Y., sale of kraft and sulphite: BRUCE FALLOWS, *president*; R. L. NASH, *executive vice-president*.

Agents and Registrar

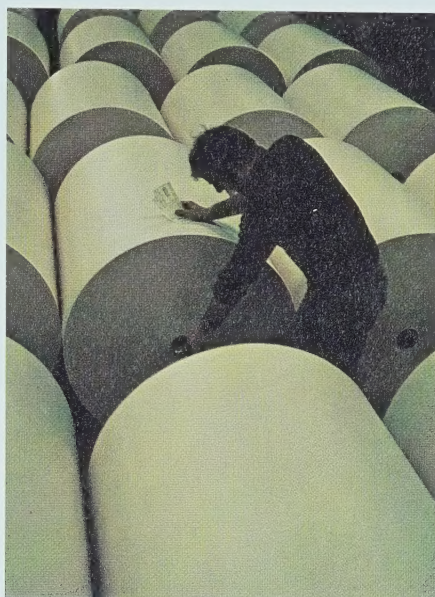
Our common share transfer agents are The Royal Trust Company, Toronto, Montreal, Calgary and Regina, and the Bank of Montreal Trust Company in New York. Our registrar is The Canada Trust Company, Toronto, Montreal, Calgary and Regina.

Shareholders' Meeting

Our shareholders' meeting will be held at 11:30 a.m. Eastern Standard Time in the Confederation Room of the Royal York Hotel, Toronto on Tuesday, April 22, 1975.

Management at December 31, 1974

PERCY M. FOX, <i>chairman of the board</i>	1952
C. J. CARTER, <i>president</i>	1947
C. J. JEFFERY, <i>executive vice-president</i>	1947
MURRAY D. SEELEY, <i>executive vice-president</i>	1956
W. J. STENASON, <i>vice-president</i>	1972
C. R. BOWLES, <i>treasurer and comptroller</i>	1964
M. G. REA, <i>secretary</i>	1969
D. D. MORROW, <i>assistant treasurer</i>	1964
K. E. WINROW, <i>assistant comptroller</i>	1971
F. H. TOLLEFSEN, <i>manager, information services</i>	1966



Our two main products, newsprint and kraft pulp, shown at the end of the production process. From here they are prepared for



shipment, wrapped to protect against dirt and moisture and shipped to our customers.

TO THE SHAREHOLDERS

Our Earnings reached a high level in 1974 as a result of the strong markets for pulp and newsprint and, while we experienced some adversity during the year, we feel encouraged by the overall results. Despite some weakness in the economy at present, we look forward with optimism to the future. The events that shaped our results in 1974 are discussed in detail beginning on page 5 of this report.

Regretfully we report the death in 1974 of Russ Stewart, a director of our company since 1957. He will be missed by the many friends he made during his long association with the company.

We Welcome J. G. Trezevant, executive vice-president of Field Enterprises, Inc., publishers of The Chicago Sun Times and The Chicago Daily News, who was appointed a director of the company at a meeting of the directors on February 5, 1975. We look forward to the contribution he will make to the affairs of our company. At the same meeting we appointed C. R. Bowles vice-president, finance. Mr. Bowles joined the company

in 1964 as comptroller, became treasurer in 1967 and was appointed a director in 1972. With his broad experience in financial matters, he is a valuable member of management.

Our Expansion Program is proceeding on schedule with much of the construction well advanced. Our activities in this regard are discussed in detail in this report, including a brief review of the financing aspects. We acknowledge the support of our majority shareholder, Canadian Pacific Investments Limited, a subsidiary of Canadian Pacific Limited, which has been a key factor in this major undertaking.

Recruitment of personnel to meet the needs of our expanding operations continued to receive major emphasis in 1974, particularly in woodlands where some shortages had developed. Many of our present employees have shown keen interest in upgrading their positions in the company by bidding for the newer job openings as they are posted. We appreciate the important contribution our employees have made to this year's significant gains and we

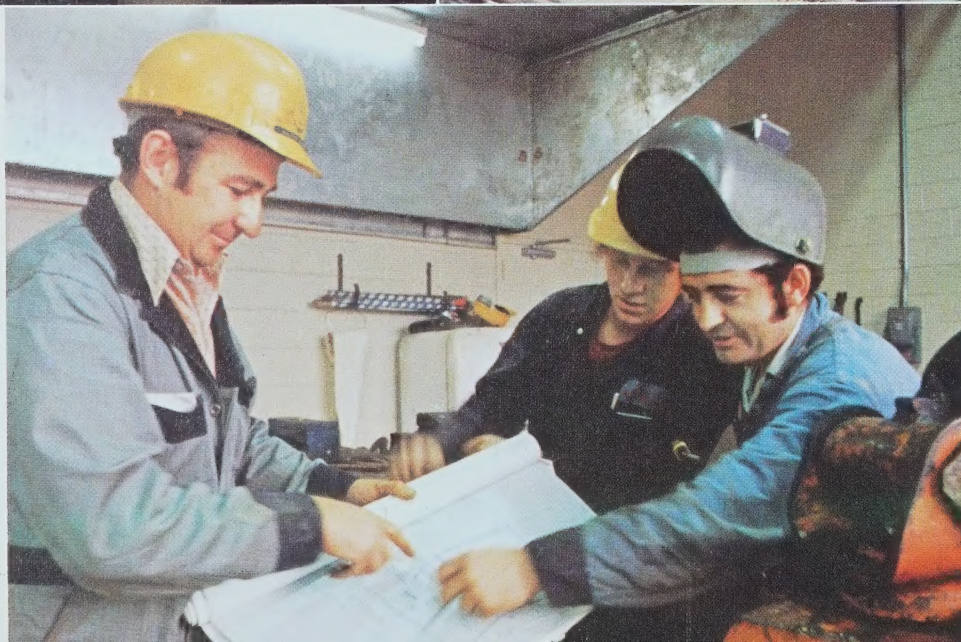
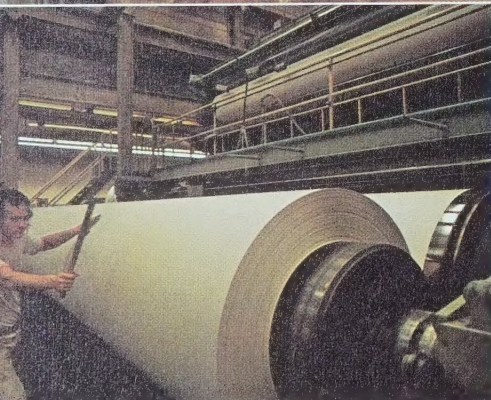
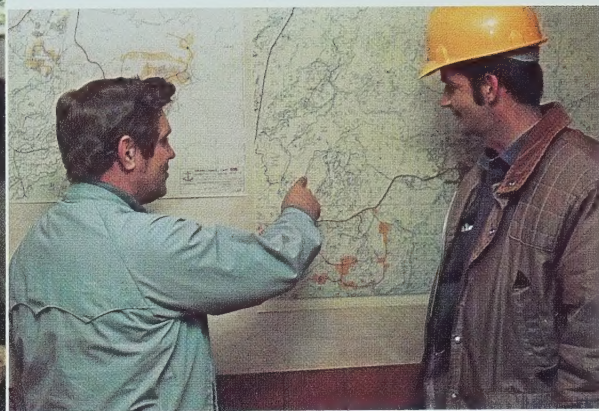
look forward to their continued support in the years ahead.

In this Report we have included a diagram and description of our new particleboard-waferboard mill to keep you abreast of the latest developments in the diversification of our operations. We have also included photographs and information on other topics to help provide a more complete description of our activities during 1974. We hope you find this material interesting and useful.

On behalf of the directors,

CHARLES J. CARTER, *president*

February 10, 1975.



The expansion program will create many new jobs and our industrial relations department is currently engaged in recruiting and training new employees. Through careful selection and proper training we hope to maintain the high standard of workmanship which is reflected in the quality of our products and efficiency of our operations. To help alleviate labor shortages in certain areas and provide equal employment opportunities, female production workers were introduced into mill and woodlands operations in 1974. We expect the number of women in our work force will increase significantly over the next few years.

1974 Results in Detail

EARNINGS REFLECT SIGNIFICANT GAINS IN 1974

Net earnings were \$14.9 million or \$4.14 a share in 1974 versus \$7.6 million or \$2.11 a share in 1973, reflecting a strong demand for our products and improved prices in newsprint and pulp. Earnings in 1974 were substantially affected by a strike of our woodlands employees, which is discussed below. Continued cost inflation, particularly in regard to labor, transportation, fuel and electric power, had a further detrimental effect on our earnings.

Shipments Lower

The woodlands strike was the main reason for lower shipments in 1974. Newsprint shipments, which were also affected by the change in basis weight, explained on pages 20 and 21, were 347,251 tons compared with 414,016 tons in 1973, a decrease of 16.1 percent. Chemical pulp shipments of 177,094 tons in 1974 were 4.9 percent lower than 186,194 tons in 1973. Stud lumber shipments, which began in the fourth quarter of 1973, totalled 31.6 million board feet in 1974.

Net Sales at High Level

Net sales, defined in our glossary of terms on page 14, were \$114.4 million in 1974 compared with \$92.8 million in 1973. Newsprint and pulp net sales were \$111 million, 20.3 percent higher than \$92.2 million in 1973.

The balance of \$3.4 million represented net sales of stud lumber, which we show as building products. The importance of diversification will increase with the addition of particle-

board and waferboard shipments, as well as the increase in stud lumber shipments resulting from the expansion of our stud lumber capacity discussed under expansion on page 8.

Substantial improvement in prices for newsprint and pulp during 1974 was responsible for the high level of net sales. Strong markets for both products remained in effect throughout the year and further price increases were announced for both newsprint and pulp effective January 1975.

While stud lumber shipments maintained a good level until shut down in October by the strike, prices weakened during the year due to a fall in the level of housing construction.

An average discount on the U.S. dollar of slightly over two percent in 1974 compared with approximate parity in 1973. Since the major portion of our sales is in the U.S., the exchange rate has a significant effect on our earnings.

Woodlands Strike Closed Mill

On October 11, negotiations with the union representing our woodlands employees broke down resulting in a strike which closed our woodlands operations and necessitated an immediate shutdown of the newsprint and stud lumber operations. The supply of wood for the kraft pulp mill was sufficient to allow production to continue until November 17. A new agreement,



In 1974 we began shipping our products via a new combined rail-water transportation system operating between Thunder Bay and Superior, Wisc., which is designed to improve our service to customers.

outlined on page 12, was ratified on November 27 and woodlands operations resumed. Within a few days both the newsprint and kraft pulp mills were back in operation. The opening of the stud mill, however, was delayed until early January 1975 when the wood flow to the mill had returned to normal levels. It is estimated that the effect of the strike was to reduce net earnings by about \$1.00 per share.

Tax Rate Up Slightly

In 1974 our effective income tax rate was 43.9 percent compared with 42.1 percent in 1973. Our earnings continued to benefit from the reduced rate of federal taxes on manufacturing and processing profits, which represent a large portion of our earnings. This reduced rate of tax, which was to expire at the end of 1974, has been extended indefinitely.

The federal government has extended the accelerated write-off for tax purposes of manufacturing and processing

equipment and pollution abatement facilities. The former has been extended indefinitely and the latter for two years. In each case, capital expenditures are deductible over a two-year period. As a result of the substantial expenditures for the expansion program, we will receive significant cash flow benefits through income tax deferments at a time when cash flow is essential to our financing plans.

Cash Flow at High Level

Cash flow, defined in the glossary of terms on page 14, was \$30.8 million in 1974, more than twice the \$14.8 million in 1973. The chart on page 23 shows cash flow for the past ten years. In 1974, cash flow comprised \$14.9 million in total net earnings, \$7.3 million in depreciation and \$8.6 million in deferred income taxes. Explanation of our policy on deferred income taxes is given on page 14.

Working Capital Down

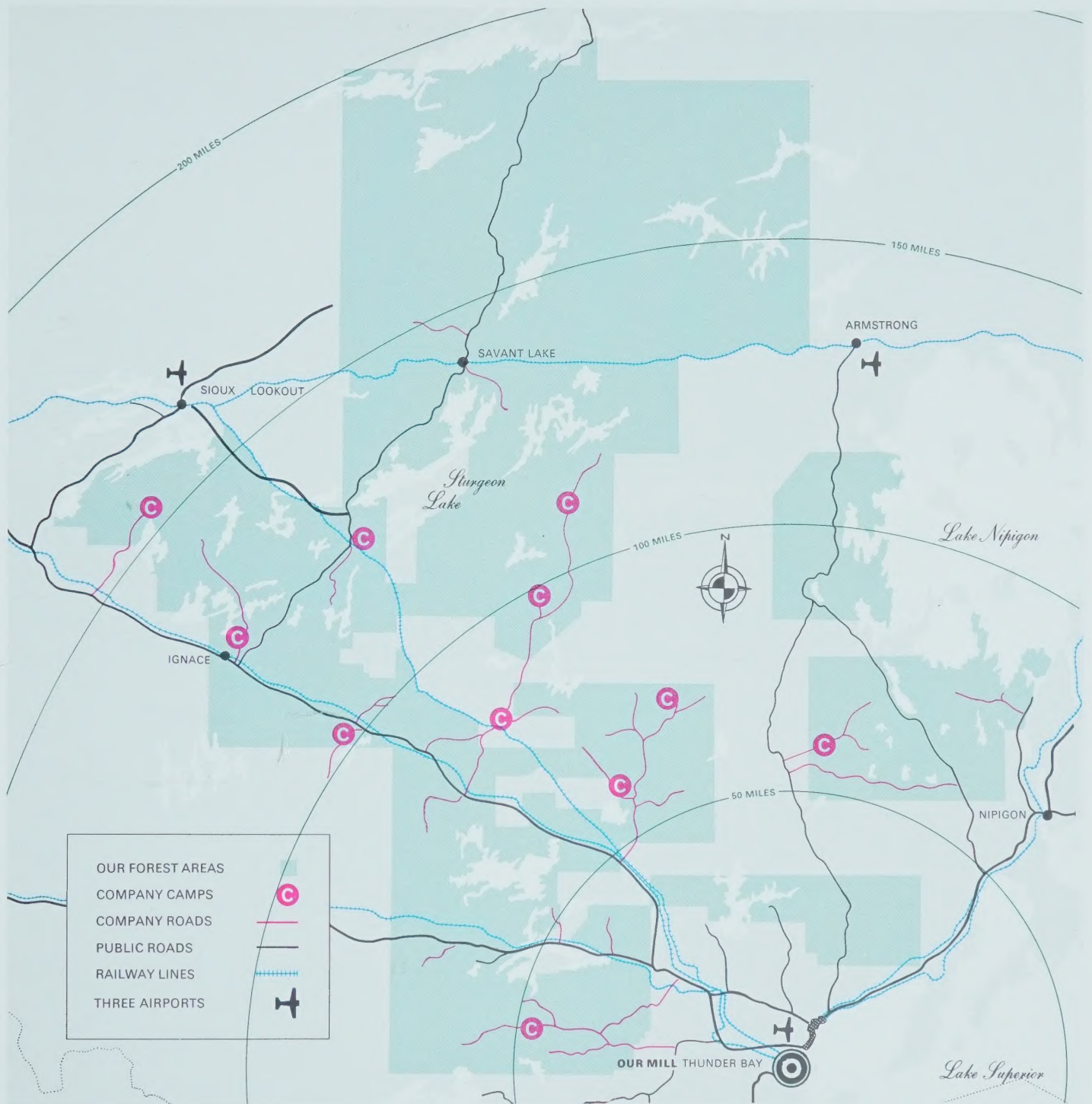
Working capital was \$2.7 million compared with \$14.2 million at the end of 1973. The low level of working capital is consistent with our plan to make maximum use of internal funding to finance the expansion program.

Price Level Accounting

In line with generally accepted accounting principles, our financial statements reflect historical dollar values. Due to unprecedented inflation in recent years there has been much discussion of the merits and methods of converting historic values to current values by application of a general price level indicator, such as the Consumer Price Index. We do not feel there is sufficient acceptance of either the principle or method of price level accounting to warrant specific treatment at this time.

Long-Term Debt

In 1974 we drew down \$13 million of the \$40 million term loan available



This map shows our company's 14,250 square miles of forest areas, which we manage on a sustained yield basis under long-term leases from the Ontario Government. The total area takes into account our expansion program and will permit us to harvest sufficient wood to meet all our needs. To open and harvest these

areas we have built the camps shown on the map as well as 1,300 miles of all-weather gravel roads which join public highways leading directly to our mill in Thunder Bay. Wood is delivered to the mill by two rail systems and trailer truck.

from Canadian Pacific Securities Limited, a wholly-owned subsidiary of our majority shareholder, Canadian Pacific Investments Limited.

The long-term debt balance on December 31, 1974 after deducting the amount due in 1975 was \$30.7 million. Details are shown in the consolidated balance sheet on page 17.

An issue of \$35 million 11 ¼ percent First Mortgage Sinking Fund Bonds, Series C, was completed on January 15, 1975. The proceeds of \$34.3 million are to be used for the expansion program.

Expansion Program

In 1973 we embarked on a major expansion and diversification program which is expected to cost a total of \$168.7 million when it is completed in mid-1976. The program, which was fully described in our 1973 annual report, calls for construction of a 250,000 ton-per-year bleached kraft pulp mill to be integrated with the existing 200,000 ton-per-year mill, the construction of a particleboard-wafer-board plant and expansion of stud lumber capacity to about 200 million board feet per year with the possibility of adding facilities to produce railroad ties. The program includes the related expansion of wood harvesting facilities.

The first stage of the program is expected to be completed early in 1975. This will include start up of the board plant and the initial stage of the stud mill expansion, which will double the capacity of the existing 50 million board-foot-per-year mill. The final stage of the stud mill expansion is scheduled for completion in mid-1976.

Work on the kraft pulp mill is well in hand. Orders had been placed for all major equipment by the spring of 1974 and construction, which started in June, was well advanced by year-end. Equipment installations are scheduled to begin early in 1975. A new type of environmental control system under consideration for the kraft mill is discussed on page 10.

To the end of 1974 \$44 million had been expended on the expansion program. The total committed cost, comprising expenditures and outstanding orders, amounted to \$92 million at December 31, 1974.

Financing

As discussed in our 1973 annual report, the directors felt it was in the best interest of our shareholders to keep dilution of equity to a minimum and, therefore, decided against an issue of common shares or convertible debt to finance a significant portion of the

program. At the same time it was recognized that shareholders' equity must be strengthened in order to raise the necessary external financing through borrowing. Consequently, it was decided not to pay dividends during the expansion period and make maximum use of internal funds.

Up to \$90 million of the financing for our expansion program is being obtained from external sources through the issue of first mortgage bonds, described elsewhere on this page, the term loan from Canadian Pacific Securities Limited and lease financing of up to \$16.4 million for woodlands portable camps and mobile equipment. In addition, we have established bank lines of credit for increased working capital requirements.

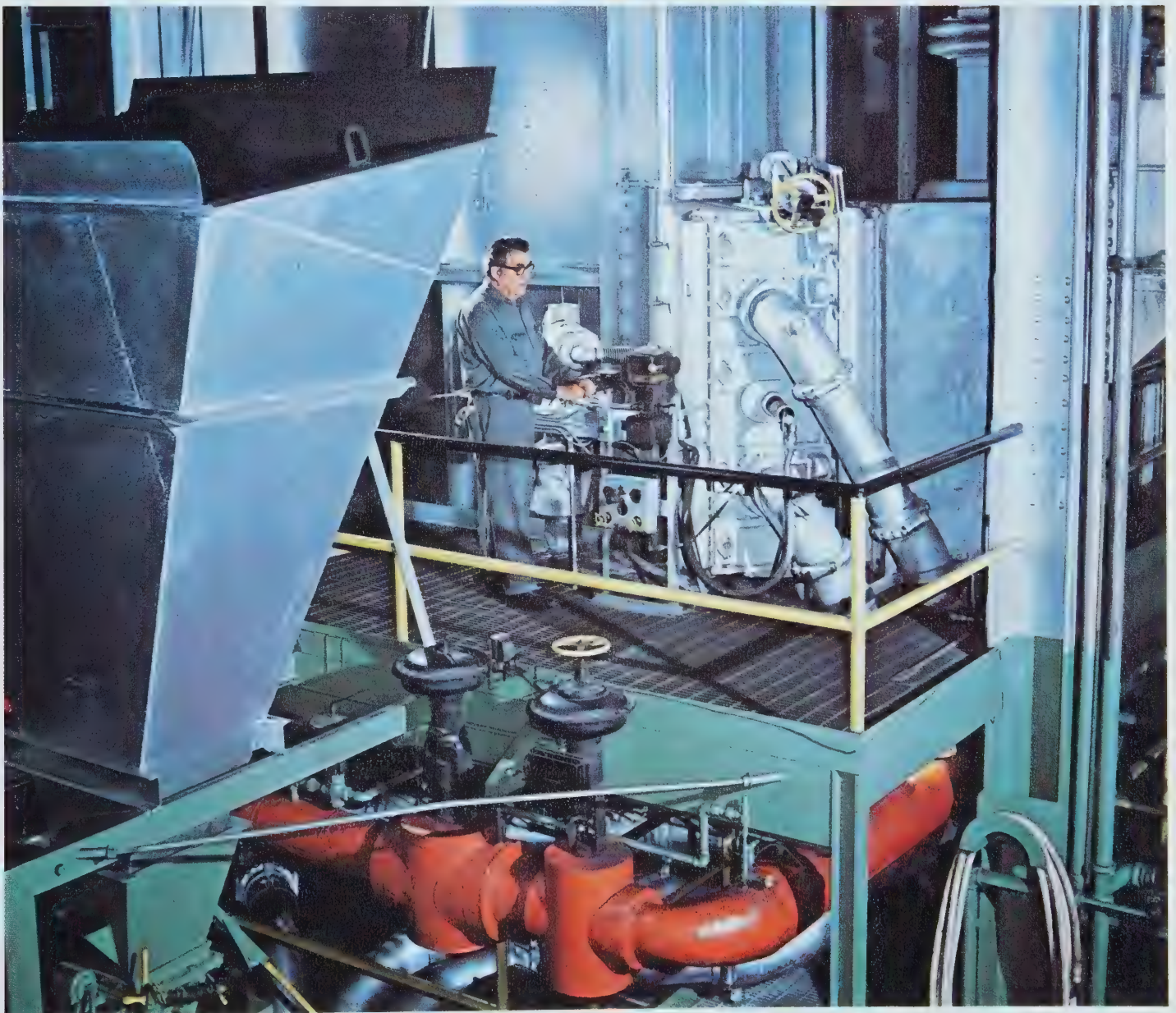
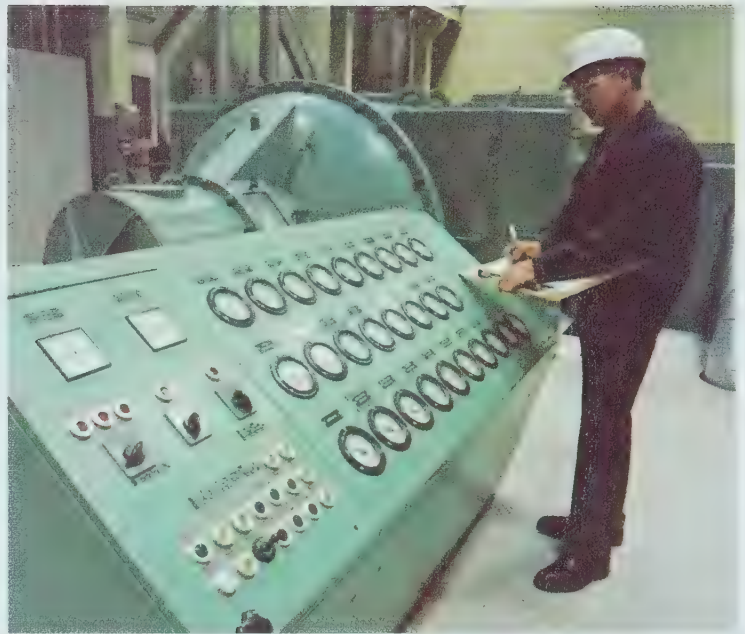
We expect that cash flow generated by operations will be adequate to cover the balance of the expansion program requirement as well as other capital projects and debt retirement charges.

Capital Expenditures

In 1974 we spent \$41.6 million on our expansion program and \$8.4 million on additions and general improvements to mill and woodlands facilities. This

When our fourth turbine, shown at right, came into operation in mid-1974, we raised our generating capacity to about half of our electrical requirements, helping to offset the ever-increasing costs of power from Ontario Hydro.

All our boilers can use either coal or gas, enabling us to take best advantage of the availability of these fuels and the differences in costs. The coal in the hopper, shown in the left foreground below, drops to a pulverizer where it is reduced to a fine dust and blown into the boiler. The operator can change fuels by moving a lever. Some of our boilers are also equipped to burn bark.





included \$2.4 million towards the high-yield sulphite pulping process, referred to in the next section and \$750,000 to complete turbine No. 4, which went into operation in July. The significance of this installation is discussed on page 9. We also spent \$1 million for improvements to paper machines and \$425,000 for completion of the new woodlands main garage on the outskirts of Thunder Bay.

Protecting the Environment

We continue to improve and update our environmental control systems to reduce the effects of any pollution that results from our industrial processes. The latest advancement in this program is the installation of the high-yield sulphite process, described in the caption with the photograph on page 11, which is scheduled for completion early in 1975. The new process will make an important contribution to our overall control of liquid wastes, or effluent.

In applying our environmental policy to the expansion program, we are currently considering the closed-cycle concept developed by Dr. Howard Rapson, a recognized authority in the field of kraft pulping and bleaching. Under this concept, substantially all contaminated pulp-processing effluents would be recycled within the mill, permitting most previously-discharged waste materials to be collected and removed from the effluent stream, resulting in the discharge of essentially clean, clear water.

Consequently, we have instructed our consultants and equipment suppliers to undertake engineering studies for the possible adaption of the Rapson concept for use in our new bleached kraft mill. To that end, we are also working closely with the federal and provincial ministries of the environment. At the same time, we continue to work with

those ministries to ensure that all our manufacturing processes will meet present and foreseeable environmental regulations governing effluent, air emissions, noise suppression and the disposal of solid wastes.

Woodlands Work Force

The increasing level of activity in our woodlands operations to meet the needs of expansion necessitated a continuation of the recruiting and training programs initiated in 1973.

To give added support to our recruiting program in 1974, we used newspaper, radio and television advertising and other forms of publicity. As a result of these efforts and our continued co-operation with Canada Manpower, we received a steady flow of prospective workers. Despite persistent labor shortages in the industry, we were able to maintain an adequate production staff throughout the year, although personnel turnover continues to be a serious problem. These programs will receive

Community activities bring our people in contact with various groups. One of our foresters, at left, meets regularly with school students throughout the area.

Mechanical refiners, shown at right, will be used to break up the partially separated fibres produced by chemical means in our new high-yield sulphite pulping process. Since the cooking phase will be greatly reduced compared with the conventional sulphite pulping process, pulp yield will be higher and the use of less chemicals will provide significant environmental benefits.



increased emphasis in 1975 to attract the workers we need to meet our increasing requirements for wood.

The training of new employees and the upgrading of our present workers' skills received further emphasis with the organization of a full-time training and development staff. A comprehensive induction and management development program for supervisors was developed for implementation in 1975.

Female production workers were introduced in 1974 to our woodlands operations at Camp 603. Following initial training on harvesting machines and mobile slashers, the women were integrated into the regular work force.

We continue to incorporate the latest in improved facilities and living accommodation in new camp construction in order to create more interesting and favorable conditions that will attract and retain the best calibre of employee for our operations.

Our continuing mechanization program helps to provide more favorable working conditions. As well as improving the working environment, this program, which has been extended to most of our operations, enables us to harvest and deliver the volume of wood required with increased efficiency.

Our Forest Resources

The bulk of the wood supply for our manufacturing complex in Thunder Bay comes from a forest area of 14,250 square miles, shown in the map on page 7, which we hold under Ontario Government licence. This area, which has supplied most of our needs in the past for conifers, known as softwood, also grows large quantities of deciduous trees we call hardwood. The latter species, which shed their leaves in the fall, such as poplar, will be used in the new waferboard operation and also in the new kraft pulp mill, thereby increasing the utilization of the fibre resources available from our wood-

lands holdings. A portion of our requirements, both softwood and hardwood, will continue to be purchased from independent woodlot operators in the area.

Reforestation

The company's co-operative program with the Ontario Ministry of Natural Resources to reforest cutover lands continued in 1974. Over 11,000 acres were treated this year, 50 percent by mechanical means for natural regeneration, 25 percent by the planting of seedling trees and 25 percent by site preparation and seeding. In addition, over 3,000 acres which were planted previously were treated by chemical spraying and hand clearing to assist growth. Since 1966, when the regeneration agreement was signed with the province, 27 million trees have been planted and a total of 45,000 acres



The former company lodge, shown in the top photograph, was donated to the Lakehead Region Conservation Authority for community activities.

A new well-equipped garage was opened just outside Thunder Bay in 1974 to serve as the main repair and parts centre for woodlands mobile equipment.

mechanically treated. Modified cutting is a technique now being used to assist in regeneration. This system of logging, which is applied to spruce stands, provides for a portion of the timber to remain uncut for up to five years, following the first harvest, as a seed source and as protection for the young trees.

While 1974 was a serious year for fire damage in Northwestern Ontario, only 5,100 acres of the company's holdings were affected. In comparison, the provincial total was 1,288,000 acres burned, mainly in the Dryden and Red Lake areas of Northwestern Ontario.

Labor Agreements

The new woodlands agreement, which is in effect until August 31, 1976, provides for general wage increases amounting to \$1.75 per hour over a two-year period, as well as increases in fringe benefits and improvements in working and living conditions. In addition, a cost-of-living adjustment clause will come into effect on May 1, 1975.

In line with most companies in the industry, we granted wage increases to our mill and office workers. On September 1, 1974 rates were increased by 25 cents an hour to help offset the rapid rise in the cost of living and on January 1, 1975 a cost-of-living adjustment

clause was introduced. Agreements with the unions representing our mill and office personnel will terminate on April 30, 1975.

Market Outlook

Estimated newsprint consumption in the U.S. was 10.4 million tons in 1974 down slightly from 10.5 million tons in 1973, due to a slowing down of the U.S. economy which affected the newspaper publishing industry.

While the downturn in the U.S. economy is expected to result in a further reduction in newsprint consumption in 1975, we do not expect that our shipments will be seriously affected. Over the longer term we believe that newsprint consumption will continue its upward trend and, with very little new manufacturing capacity announced, we expect a strong newsprint market for the foreseeable future.

Demand for market bleached kraft pulp is expected to soften in the first part of 1975 with the economic downturn, although it has maintained good growth over the years. This softness is expected to be short-lived. The rush to build additional pulp manufacturing

capacity that occurred formerly in times of high demand has not materialized, as evidenced by the comparatively few new mills that have been announced. Considering all factors, therefore, we expect a strong market for bleached kraft pulp over the long term.

The market for building products has suffered over the past year or so due to a serious fall in the level of housing construction in Canada and the U.S. We expect that housing construction will return to more normal levels in the latter part of 1975 or early 1976, resulting in improved prices for building products.

Company Outlook

We expect strong earnings in 1975 despite the current weakness in the economy and, with the prospect of continuing growth in our markets, we look forward to satisfactory performance in the years ahead.

It is apparent that cost inflation will continue to have a detrimental effect on our earnings. We have already received notification of substantial increases in freight rates and chemical and energy costs in 1975. Only through continued efforts to increase mechanization and improve the efficiency of operation can we hope

to minimize the effects of this constant challenge. Earnings will also be affected by changes in the exchange value of the Canadian dollar and the future course of government charges, such as the Ontario Government legislation, introduced in 1974, doubling Crown dues, commonly called "stumpage," for the cutting of timber on Crown lands. The government announced this as an interim measure and has indicated that further increases can be expected. Such items can and do add considerably to the cost of operation which undermines the competitive position of the Canadian pulp and paper industry in world markets.

As we look to the future there are, of course, uncertainties as well as prospects for solid growth. We are optimistic that the timing and progress of our expansion program are such that we will be in a position to take full advantage of the promising opportunities we see ahead.

GLOSSARY OF TERMS

NET SALES: The Canadian dollar proceeds from the sale of products after deducting costs of delivery to customers.

OPERATING PROFIT: Profit realized from manufacture and sale of products after deducting all costs except interest charges, depreciation and income taxes. Applies to operations only; does not include investment or other income.

DEPRECIATION: The distribution on a yearly basis of the original cost of a fixed asset (defined below) over its estimated useful life, which is written off as a deduction from earnings.

NET EARNINGS: Total income less all costs; the net amount available to pay dividends or retain for use in the business.

CASH FLOW: Total funds generated by operations in a year. In our case, cash flow includes net earnings and charges not requiring cash outlay such as depreciation and deferred income taxes.

RETAINED EARNINGS: Accumulated total of annual net earnings since the start of the company (1936) less dividends to shareholders during the same period and after taking into account extraordinary items such as bond and debenture issue discount and expense.

CURRENT ASSETS: Cash and other assets which, in the normal course, will be converted into cash or consumed in operations within one year.

FIXED ASSETS: Assets, such as land, buildings and machinery, held for long-term use rather than for sale or consumption in operations.

CURRENT LIABILITIES: Amounts owed (including a portion of long-term debt) due for payment within one year.

LONG-TERM DEBT: Amounts borrowed for a term of longer than one year.

SINKING FUND: Amounts paid to independent trustees of our bond issues, as stipulated in the trust deeds of these issues, to provide annual instalments for their redemption.

WORKING CAPITAL: Amount by which current assets exceed current liabilities, both as defined above. This is a measure of working or operating resources.

BALANCE SHEET: Statement of financial position at a year-end showing what is owned (assets of all kinds) versus what is owed (liabilities of all kinds) and shareholders' equity; set forth in accordance with The Business Corporations Act (Ontario). The word "consolidated" means that all subsidiaries are included to show position of the enterprise as a whole.

SHAREHOLDERS' EQUITY: Value of the shareholders' ownership or interest in the company. Consists of share capital plus retained earnings and is the amount by which assets exceed liabilities.

OUR ACCOUNTING POLICY & METHODS

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles applied on a consistent basis over the years. Significant items are explained below and in notes to the financial statements on page 19.

Inventories

In general, inventories are valued at average cost which is less than the net amount realizable from the selling price for the finished product, after deducting cost of completing manufacture and delivery.

Fixed Assets

The cost of fixed assets includes the estimated original cost of certain fixed assets acquired from our predecessor company in 1936. Such estimated cost amounts to \$13 million which has been fully written off by means of depreciation and depletion charges. All subsequent fixed asset additions are carried at their actual cost.

While timber licences have been fully written off through depletion charges, such licences provide for renewals on a long-term basis. The licensed areas are managed on a sustained yield basis and are adequate to provide for our total wood requirements, including expansion.

Depreciation

Depreciation on pulp and paper mill buildings and machinery is calculated on the straight-line basis at a composite rate of 4½ percent per year, which is based on estimates of the economic lives of our assets. Before 1970, such assets were depreciated on a diminishing balance basis at a rate of ten percent per year. Figures in this report for the years prior to 1970 have not been restated.

Building products division buildings and machinery are depreciated on the straight-line basis at a composite rate of ten percent per year reflecting the shorter expected life of such assets.

Woodlands improvements and equipment are depreciated on the diminishing balance method at a rate of 30 percent per year.

In line with accepted practice, we do not charge depreciation on major projects against earnings until construction has been completed. For this purpose, we define a major project as one costing over \$500,000.

Deferred Income Taxes

In the first few years following acquisition of a capital asset, the depreciation claimed for income tax purposes under present tax law exceeds the depreciation shown in the financial statements. This situation is reversed, however, in later years. As a result, the taxes charged to earnings during the initial period exceed actual tax payments. The excess amounts are set aside as deferred income taxes to be drawn upon in future years when the amount of taxes charged to earnings falls below actual tax payments.

EARNINGS

consolidated statement for years ended December 31 (thousands of dollars)

	1974	1973
Net sales: pulp and paper	\$110,977	\$92,237
building products	3,465	584
	114,442	92,821
Cost of sales	76,575	69,327
Selling and administrative expense	2,426	2,134
OPERATING PROFIT	35,441	21,360
Other income	184	114
	35,625	21,474
Interest on long-term debt (Note 9)	1,733	1,859
Depreciation	7,267	6,454
EARNINGS before income taxes	26,625	13,161
Income taxes	11,687	5,540
NET EARNINGS for year	\$ 14,938	\$ 7,621
Net earnings per share	\$ 4.14	\$ 2.11
Net earnings per share fully diluted (Note 10)	\$ 3.92	\$ 2.05

RETAINED EARNINGS

consolidated statement for years ended December 31 (thousands of dollars)

Retained earnings at beginning of year	\$35,639	\$28,018
Net earnings for year	14,938	7,621
RETAINED EARNINGS at end of year	\$50,577	\$35,639

BALANCE SHEET

consolidated statement at December 31 (thousands of dollars)

Assets	1974	1973
	<hr/>	<hr/>
CURRENT ASSETS		
Cash.....	\$ —	\$ 3,093
Accounts receivable.....	11,206	15,997
Income taxes recoverable.....	564	—
Inventories at cost, which is less than net realizable value:		
Finished goods.....	222	329
Pulpwood and sawlogs.....	8,748	5,627
Materials and supplies.....	6,791	4,918
Prepaid expenses.....	161	227
	<hr/>	<hr/>
	27,692	30,191
	<hr/>	<hr/>
FIXED ASSETS—at cost (Note 3).....	207,999	158,378
Accumulated depreciation and depletion.....	100,444	93,423
	<hr/>	<hr/>
	107,555	64,955
	<hr/>	<hr/>
	<hr/>	<hr/>
	\$135,247	\$95,146
	<hr/> <hr/>	<hr/> <hr/>

Signed on behalf of the Board:

C. J. CARTER, *Director*

R. G. MEECH, *Director*

Liabilities	1974	1973
CURRENT LIABILITIES		
Bank indebtedness (Note 6).....	\$ 3,470	\$ —
Accounts payable and accrued charges.....	14,404	8,551
Income and other taxes payable.....	1,802	5,506
Current portion of long-term debt (Note 7).....	5,290	1,944
	<u>24,966</u>	<u>16,001</u>
LONG-TERM DEBT (Note 7)		
First Mortgage Bonds		
4% sinking fund bonds, Series A, maturing 1975.....	3,750	4,199
8% sinking fund bonds, Series B, maturing 1989.....	18,200	18,700
Debentures		
5¾% serial debentures, Series C, maturing 1975 (\$1,000,000 U.S. funds).....	1,075	2,150
Term loan.....	13,000	—
	<u>36,025</u>	<u>25,049</u>
Portion due within one year.....	5,375	2,024
	<u>30,650</u>	<u>23,025</u>
DEFERRED INCOME TAXES.....	<u>26,304</u>	<u>17,731</u>
Shareholders' Equity		
Common shares without par value (Note 8)		
Authorized 4,500,000 shares		
Issued 3,610,029 shares.....	2,750	2,750
Retained earnings.....	50,577	35,639
	<u>53,327</u>	<u>38,389</u>
	<u>\$135,247</u>	<u>\$95,146</u>

CHANGES IN FINANCIAL POSITION

consolidated statement for years ended December 31 (thousands of dollars)

	1974	1973
SOURCE OF FUNDS		
Net earnings as reported on page 15.....	\$14,938	\$ 7,621
Charges not requiring an outlay of funds		
Depreciation.....	7,267	6,454
Increase in deferred income taxes.....	8,573	768
FUNDS FROM OPERATIONS.....	30,778	14,843
Term loan.....	13,000	—
Issue of common shares.....	—	185
Sale of fixed assets.....	130	554
	43,908	15,582
APPLICATION OF FUNDS		
Expenditures on fixed assets.....	49,997	12,137
Reduction of long-term debt.....	5,375	2,405
	55,372	14,542
INCREASE (DECREASE) IN WORKING CAPITAL.....	(11,464)	1,040
WORKING CAPITAL at beginning of year.....	14,190	13,150
WORKING CAPITAL at end of year.....	\$ 2,726	\$14,190

AUDITORS' REPORT TO THE SHAREHOLDERS

To the Shareholders of The Great Lakes Paper Company, Limited

We have examined the consolidated balance sheet of The Great Lakes Paper Company, Limited and its subsidiaries as at December 31, 1974 and the consolidated statements of earnings, retained earnings and changes in financial position for the year then ended. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion these consolidated financial statements present fairly the financial position of the companies as at December 31, 1974 and the results of their operations and the changes in their financial position for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

TORONTO, ONTARIO, January 24, 1975

RIDDELL, STEAD & Co.
Chartered Accountants

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Consolidation

The consolidated financial statements include the financial position and results of operations of The Great Lakes Paper Company, Limited and all its subsidiary companies.

2. U.S. Dollar Balances

U.S. dollar current assets and current liabilities, including the current portion of long-term debt repayable in U.S. funds, have been stated in Canadian dollars at the one percent U.S. dollar exchange discount in effect at December 31, 1974. Long-term debt repayable in U.S. funds (less the current portion) has been converted to Canadian funds at the 7.5 percent U.S. dollar exchange premium in effect at date of issue.

3. Fixed Assets (thousands of dollars)

	December 31, 1974		December 31, 1973
	Cost	Net Value	Net Value
Land	\$ 476	\$ 476	\$ 314
Buildings and machinery			
Pulp and paper	139,088	52,802	54,617
Building products	3,987	3,490	3,864
Woodlands improvements and equipment	13,316	3,600	2,457
Timber licences	3,945	—	—
Construction in progress	47,187	47,187	3,703
	<u>\$207,999</u>	<u>\$107,555</u>	<u>\$64,955</u>

4. Capital Expenditure Program

The company's expansion program is currently estimated to cost \$168.7 million. Capital commitments in connection with the expansion program and other projects amounted to \$48.6 million at December 31, 1974.

5. Lease Commitments

The company has signed leases (with options to purchase) covering certain portable camp buildings and mobile equipment for terms of three to ten years. The payments under these leases amounted to \$1.4 million in 1974. Based on leases in effect at December 31, 1974, payments over the next five years will amount to \$1.6 million in 1975 and thereafter in reducing amounts to \$700,000 in 1979. The company has entered into an agreement dated as of April 19, 1974 providing for up to \$16.4 million of lease financing (with options to purchase) of woodlands portable camp buildings and mobile equipment for terms of from six to 11 years. Lease terms will commence on delivery of the buildings and equipment; mainly in the second half of 1975 and in 1976.

6. Bank Indebtedness

The company has arranged operating lines of credit with two Canadian chartered banks. These lines are subject to periodic review by the banks and currently provide for aggregate loans of up to \$20 million. Amounts borrowed are to be secured by an assignment of accounts receivable and charges on inventories.

7. Long-Term Debt

Payments (expressed in Canadian funds) required to meet maturities and sinking fund provisions of the First Mortgage Bonds and Debentures over the next five years approximate \$5.4 million in 1975, \$650,000 in each of the years 1976 and 1977, \$1.3 million in 1978 and \$1.4 million in 1979. These amounts include the sinking fund requirements for the First Mortgage Sinking Fund Bonds, Series C, referred to in Note 14.

Canadian Pacific Securities Limited, a wholly-owned subsidiary of Canadian Pacific Investments Limited, the majority

shareholder in the company, has agreed, with effect from February 1, 1974, to provide term financing of up to \$40 million. The agreement provides for a floating rate of interest and repayment over a five-year period commencing in 1977 with the right to prepay. During the year \$13 million of this financing was utilized.

8. Common Shares

Common shares were reserved at December 31, 1974 for the following:

- 49,335 shares under a share option plan for certain executive and other employees of the company or of any subsidiary of the company. Options to acquire, under the terms of the plan, 22,100 shares at \$24.50 per share exercisable not later than June 1, 1975 were outstanding at December 31, 1974.
- 200,000 shares for the common share purchase warrants which accompanied the First Mortgage Sinking Fund Bonds, Series B. The warrants are exercisable at \$33.00 per share until July 1, 1979.
- 100,000 shares for a purchase option granted to Canadian Pacific Investments Limited. The option is exercisable at \$24.00 per share until January 1, 1982. Both the number of shares and the price per share are subject to adjustment in the event additional shares are issued (other than pursuant to options and warrants outstanding at December 31, 1973) or other changes in the company's capital structure.

9. Interest on Long-Term Debt

Interest on the term loan from Canadian Pacific Securities Limited has been capitalized. It is the company's intention to capitalize, during the construction period, all interest on long-term debt incurred to finance the expansion program.

10. Fully Diluted Earnings Per Share

Fully diluted earnings per share were determined on the assumption that options and purchase warrants outstanding at the end of each year had been exercised at the beginning of that year and the funds therefrom invested to produce a return at the average interest rate for 90-day bank certificates of deposit.

11. Dividend Restriction

The trust deeds securing the First Mortgage Bonds and Debentures, including the First Mortgage Sinking Fund Bonds, Series C, referred to in Note 14, contain dividend restrictions. The most restrictive of these requires that after any dividend is declared working capital (which for these purposes is before the deduction of the current portion of long-term debt) must be over \$10 million and shareholders' equity must be over \$50 million.

12. Executive Remuneration

In 1974 directors' fees amounted to \$57,000 and the total remuneration, including directors' fees, received by the directors and senior officers amounted to \$390,000.

13. Past Service Pension Costs

Past service pension costs, resulting from retroactive increases in benefits in prior years, are being funded and charged to earnings in equal annual instalments to 1989. Based on recent actuarial reports, the unfunded amount was \$3.6 million at December 31, 1974.

14. Subsequent Event

On January 15, 1975 the company issued \$35 million principal amount of 11¼% First Mortgage Sinking Fund Bonds, Series C for \$34,335,000.

NEWSPRINT PAPER

The United States is Canada's principal customer for newsprint and accounts for approximately 50 percent of the non-communist world's consumption. The following table, based on reports issued by Canadian Pulp and Paper

Association (CPPA), indicates the size and growth of newsprint markets over the period 1965 through 1974.

World totals in newsprint omit communist countries for which reliable information is lacking.

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
	(thousands of tons)									
Free world production capacity.....	18,427	19,080	20,359	21,441	22,263	23,157	23,502	23,854	24,256	24,665
Free world production.....	16,839	18,028	18,022	18,781	20,457	20,986	20,516	21,278	22,022	22,985
Canadian production capacity.....	8,421	8,878	9,294	9,655	9,675	9,845	10,240	10,300	10,337	10,474
Canadian production.....	7,720	8,419	8,051	8,031	8,818	8,719	8,455	8,820	9,140	9,946
Canadian exports.....	7,156	7,764	7,330	7,422	8,088	7,987	7,641	8,120	8,340	9,075
Canadian exports to U.S.....	6,093	6,610	6,263	6,107	6,430	6,163	6,146	6,430	6,855	7,239
Total U.S. consumption.....	8,460	9,077	9,149	9,244	9,741	9,545	9,654	10,299	10,504	10,363

Source: American Newspaper Publishers Assoc. and CPPA (1974 estimated)

CHANGE TO 30-POUND BASIS WEIGHT

All amounts in the above table are calculated on a 32-pound basis weight. During 1974 a change to 30-pound basis weight went into effect generally throughout the Canadian industry to improve utilization of wood fibre. This

measure is based on the weight of 500 sheets, 24 by 36 inches in size. The effect of this conversion is to reduce production tonnage of newsprint proportionately to the change in basis weight without affecting the total printing surface area.

LUMBER

Residential construction provides the principal use for softwood lumber produced in Canada and the U.S., a substantial portion of which is stud lumber. The following

table indicates the level of housing construction and the sources of softwood lumber production in North America over the past ten years.

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
North American housing starts (thousands).....	1,640	1,299	1,456	1,705	1,677	1,625	2,286	2,607	2,314	1,558
Seasonally adjusted year-end rate of North American housing starts (thousands).....	1,119	1,061	1,493	1,835	1,579	2,139	2,646	2,590	1,655	1,036
Softwood lumber production (millions FBM)										
U.S.....	28,230	27,973	27,069	28,936	28,309	27,410	29,744	31,441	31,335	28,000
British Columbia.....	7,446	7,314	7,103	7,804	7,691	7,651	8,933	9,502	10,311	8,900
Rest of Canada.....	2,844	2,712	2,636	2,958	3,299	3,136	3,341	3,942	4,935	4,500
Total.....	38,520	37,999	36,808	39,698	39,299	38,197	42,018	44,885	46,581	41,400

Sources are: Statistics Canada, U.S. Bureau of Census, National Assn. of Home Builders (U.S.), Western Wood Products Assn. and Southern Forest Assn. (1974 estimated)

BLEACHED KRAFT PULP

Bleached kraft pulp is included in the general commodity classification of paper grade chemical pulp. North America and Scandinavia are the major suppliers of paper grade chemical pulp, having a production capacity in 1974 of approximately 65.1 million tons or 80 percent of the world's total production capacity. The bulk of the pulp produced by these countries is captive production for sales between

related buyers and sellers. The balance, known as market pulp, is available for sale on the open market. Most of this market pulp consists of bleached kraft pulp. In 1974 the production capacity in North America and Scandinavia for market bleached kraft pulp was approximately 12.9 million tons of which Canadian production capacity amounted to approximately 45 percent, or 5.9 million tons.

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
	(thousands of tons)									
Paper Grade Chemical Pulp										
North American and Scandinavian production.....	39,661	42,465	43,848	47,243	50,783	52,183	51,478	55,145	58,836	59,100
Bleached Kraft Pulp										
North American and Scandinavian production.....	13,738	15,395	16,904	19,148	21,115	22,493	22,652	24,389	26,592	27,000
Market Bleached Kraft Pulp										
Total demand for North American and Scandinavian production....	5,041	5,836	6,224	7,599	9,017	9,618	8,449	10,422	11,459	11,724
Canadian shipments.....	1,719	2,137	2,393	3,024	3,731	3,692	3,700	4,353	4,926	5,264
Canadian exports to U.S.....	983	1,231	1,154	1,314	1,748	1,519	1,491	1,781	1,909	1,992
Total U.S. supply (including imports)	2,081	2,396	2,199	2,480	3,120	2,745	2,822	3,599	3,632	3,540

Source: CPPA (1974 estimated)

OUR SHIPMENT SUMMARY: LAST TEN YEARS

TONS OF PULP AND PAPER SHIPPED TO CUSTOMERS

Years	Newsprint	Chemical Pulps	Total Tons
1965	337,045	15,737	352,782
1966	374,081	89,322	463,403
1967	362,443	131,020	493,463
1968	314,503	157,262	471,765
1969	350,709	167,918	518,627
1970	335,194	184,613	519,807
1971	340,516	166,073	506,589
1972	338,526	166,244	504,770
1973	414,016	186,194	600,210
1974	347,251	177,094	524,345

STUD LUMBER SHIPMENTS

Years	FBM (in thousands)
1973	4,983
1974	31,649

Each stud represents about five board feet, or FBM (foot board measure).

NEWSPRINT TONS AND OPERATING RATIO

Years	Capacity	Production	Ratio (%)
1965	368,676	336,377	91.2
1966	389,914	374,672	96.1
1967	422,956	363,977	86.1
1968	428,868	311,237	72.6
1969	437,030	350,795	80.3
1970	442,078	335,550	75.9
1971	441,124	340,539	77.2
1972	434,132	339,735	78.3
1973	430,491	412,259	95.8
1974	422,570	346,526	82.0

For 1974 our newsprint capacity was rated by the Canadian Pulp and Paper Association as 438,559 tons of 32-pound basis weight newsprint. This rated capacity has been restated to give effect to our conversion to 30-pound newsprint on June 1, 1974. For 1975 our capacity is rated as 413,708 tons of 30-pound newsprint. Prior to 1967 capacity was rated on the basis of six-day operation.

FINANCIAL SUMMARY: LAST TEN YEARS

Except as indicated, dollars are in thousands with 000 omitted.

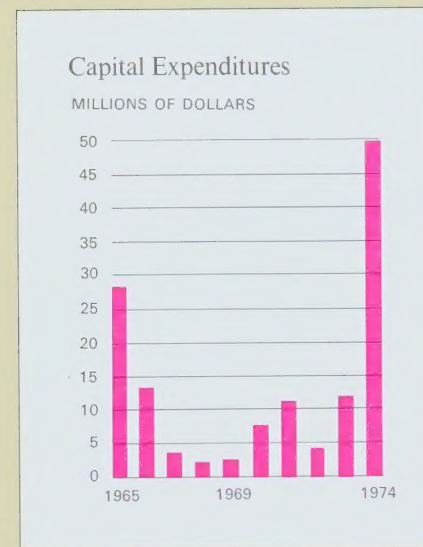
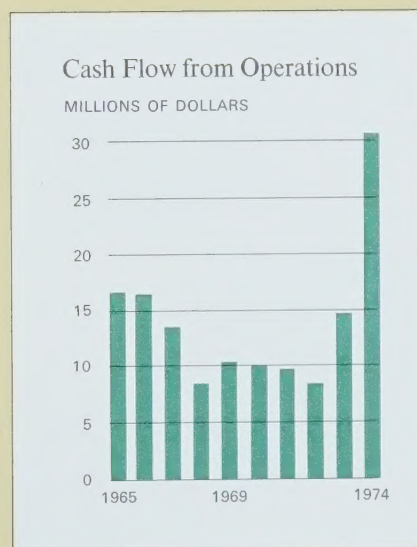
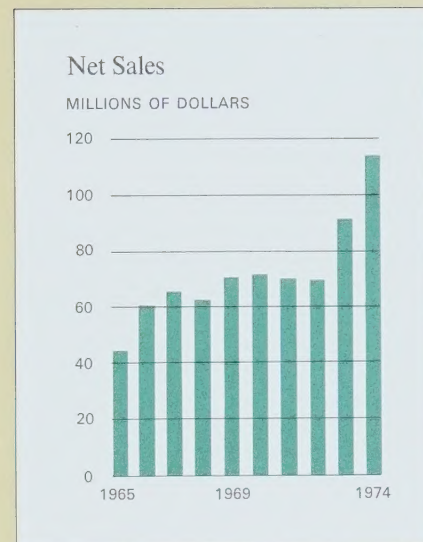
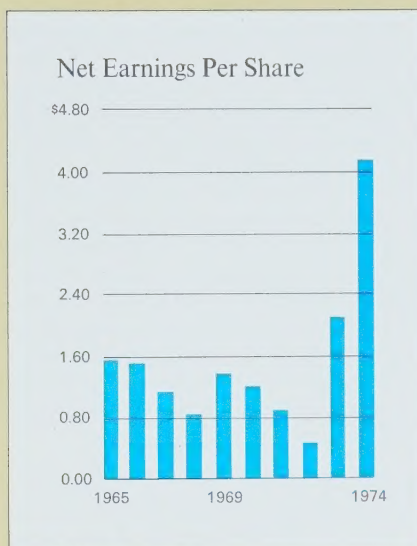
	1974	1973	1972	1971	1970	1969	1968
SALES & EARNINGS							
Net sales: pulp and paper	110,977	92,237	69,433	71,010	71,822	71,267	62,541
building products	3,465	584	—	—	—	—	—
total	114,442	92,821	69,433	71,010	71,822	71,267	62,541
Operating profit	35,441	21,360	10,892	13,446	15,728	17,951	14,455
Interest on long-term debt	1,733	1,859	2,043	2,306	2,537	2,036	1,440
Depreciation	7,267	6,454	6,085	5,843	5,873	6,528	6,881
Earnings before income taxes	26,625	13,161	2,927	5,747	8,820	10,446	6,359
Income taxes	11,687	5,540	1,319	2,510	4,475	5,407	3,270
Net earnings	14,938	7,621	1,608	3,237	4,345	5,039	3,089
Net earnings per share	4.14	2.11	0.45	0.90	1.21	1.40	0.86
Dividends declared, total amount	—	—	1,081	2,342	3,603	3,603	3,603
Dividends per share; in cents	—	—	30	65	100	100	100
ASSETS & LIABILITIES							
Current assets	27,692	30,191	24,940	25,535	33,324	41,073	21,360
Current liabilities	24,966	16,001	11,790	13,124	12,718	14,739	14,221
Ratio of above assets to liabilities	1.1	1.9	2.1	1.9	2.6	2.8	1.5
Working capital	2,726	14,190	13,150	12,411	20,606	26,334	7,139
Inventories, described in balance sheet	15,761	10,874	10,260	9,753	9,279	9,440	9,184
Fixed assets, see notes to financial statements	207,999	158,378	147,718	143,808	132,877	126,227	124,057
Accumulated depreciation and depletion	100,444	93,423	87,892	82,242	76,630	71,392	65,309
Long-term debt	30,650	23,025	25,430	27,766	32,167	36,970	21,343
Above debt as percentage of capitalization	36.5	37.5	45.4	48.0	52.5	56.5	43.7
Deferred income taxes, explained on page 14	26,304	17,731	16,963	16,155	15,525	15,780	17,030
Retained earnings, at year-end	50,577	35,639	28,018	27,491	26,596	25,854	24,949
EQUITY & OTHER DATA							
Common shares outstanding, at year-end	3,610,029	3,610,029	3,602,603	3,602,603	3,602,603	3,602,603	3,602,603
Number of shareholders	3,745	4,035	4,470	4,919	5,209	5,418	6,202
Percentage of shares held in Canada	96.9	97.0	96.0	95.5	95.3	93.1	94.2
Shareholders' equity, total	53,327	38,389	30,583	30,056	29,161	28,419	27,514
Shareholders' equity per share	14.77	10.63	8.49	8.34	8.09	7.89	7.64
Cash flow from operations	30,778	14,843	8,501	9,710	9,963	10,317	8,520
Cash flow per share	8.53	4.11	2.36	2.70	2.77	2.86	2.36
Net earnings percentage on net sales	13.1	8.2	2.3	4.6	6.0	7.1	4.9
Annual expenditures on fixed assets	49,997	12,137	4,455	11,191	7,446	2,704	2,222
Number of employees on payroll	3,013	2,778	2,441	2,527	2,768	2,857	2,693

All per share figures are based on shares outstanding at the end of the respective years.

1967	1966	1965
66,192	60,644	44,751
—	—	—
66,192	60,644	44,751
17,511	17,886	15,746
1,673	1,478	774
7,506	5,637	3,167
8,510	10,924	11,863
4,300	5,450	6,165
4,210	5,474	5,698
1.17	1.52	1.58
3,602	3,600	3,600
100	100	100

20,655	23,080	19,734
12,485	16,964	11,235
1.7	1.4	1.8
8,170	6,116	8,499
11,464	11,879	9,308
122,643	119,282	106,459
59,111	51,822	46,734
25,686	30,009	34,313
47.8	52.3	57.4
18,480	16,565	11,115
25,463	24,855	22,981

3,602,603	3,600,523	3,600,083
6,402	6,632	6,926
93.8	93.6	93.7
28,028	27,367	25,483
7.78	7.60	7.08
13,630	16,562	16,684
3.78	4.60	4.63
6.4	9.0	12.7
3,671	13,558	28,093
2,590	3,077	2,406



1974 RESULTS BY QUARTERS

Sales and Earnings '000 omitted

1974 Quarterly			
Quarter	Net Sales	Oper. Profit	Net Earnings
First	\$ 28,796	\$ 8,623	\$ 3,583
Second	31,484	9,827	4,337
Third	34,427	12,361	5,717
Fourth	19,735	4,630	1,301
	\$114,442	\$35,441	\$14,938

Net Earnings Per Share

Quarter	1970	1971	1972	1973	1974
First	\$0.26	\$0.09	\$(0.03)	\$0.25	\$0.99
Second	0.28	0.27	0.14	0.55	1.20
Third	0.25	0.26	0.14	0.52	1.59
Fourth	0.42	0.28	0.20	0.79	0.36
	\$1.21	\$0.90	\$0.45	\$2.11	\$4.14

Fourth quarter results for 1974 affected by seven-week woodlands strike.

OUR NEW PARTICLEBOARD-WAFERBOARD PLANT

Our particleboard-waferboard plant, which will start up early in 1975, has the capability of producing products that have wide use in the construction and furniture fields. While particleboard and waferboard are the main products, the plant will also produce some variations of these boards to meet specialized requirements. Waferboard is a tough water-resistant building board used for exterior sheathing, interior panelling, roofing and floor underlayment. Particleboard, on the other hand, is widely used in furniture and cabinets, often overlaid with an attractive finish.

WAFERBOARD

The hot pond which receives the eight-foot poplar logs used in the waferboard process serves to de-ice the wood in winter, as well as remove sand and debris. The clean logs are fed automatically to a conveyor and then separated into two lines: one for wood that is destined for use in the centre, or core, of the finished board and the other for surface material. Since exterior quality and strength are important in the overall requirements for waferboard, only the best logs are selected for the surface line.

Following the debarking operation the logs are fed to a slasher which cuts them into four-foot lengths. A final sort can be made before the logs are discharged to the surface

and core conveyor lines and transported to the waferizers. Here the logs are automatically cut into wafer-thin strips from 1½ to 2½ inches in length. The wafers then enter the wet bunkers where they are held pending release in a steady flow to the dryers.

Moisture Reduced

The dryers operate at about 350° Fahrenheit reducing the moisture content of the wafers to around four percent. The wafers are then fed to screens which separate the smallest pieces, called fines. These are directed to the waste wafer storage silo for use in making particleboard. The remaining wafers move on to the dry bunkers where they are gathered and fed in a steady flow to the waferboard blenders. Here the wafers are first sprayed with hot wax for waterproofing, then coated with powdered phenolic resin which will bind them together in the eventual pressing operation and moisture is added. Moisture control is critical in the manufacturing process.

The glue mixtures for both waferboard and particleboard are automatically regulated in the glue kitchen which provides a continuous feed to the blenders.

The wafers are now ready for the final stages of board production. From the blending operation the wafers travel along both core

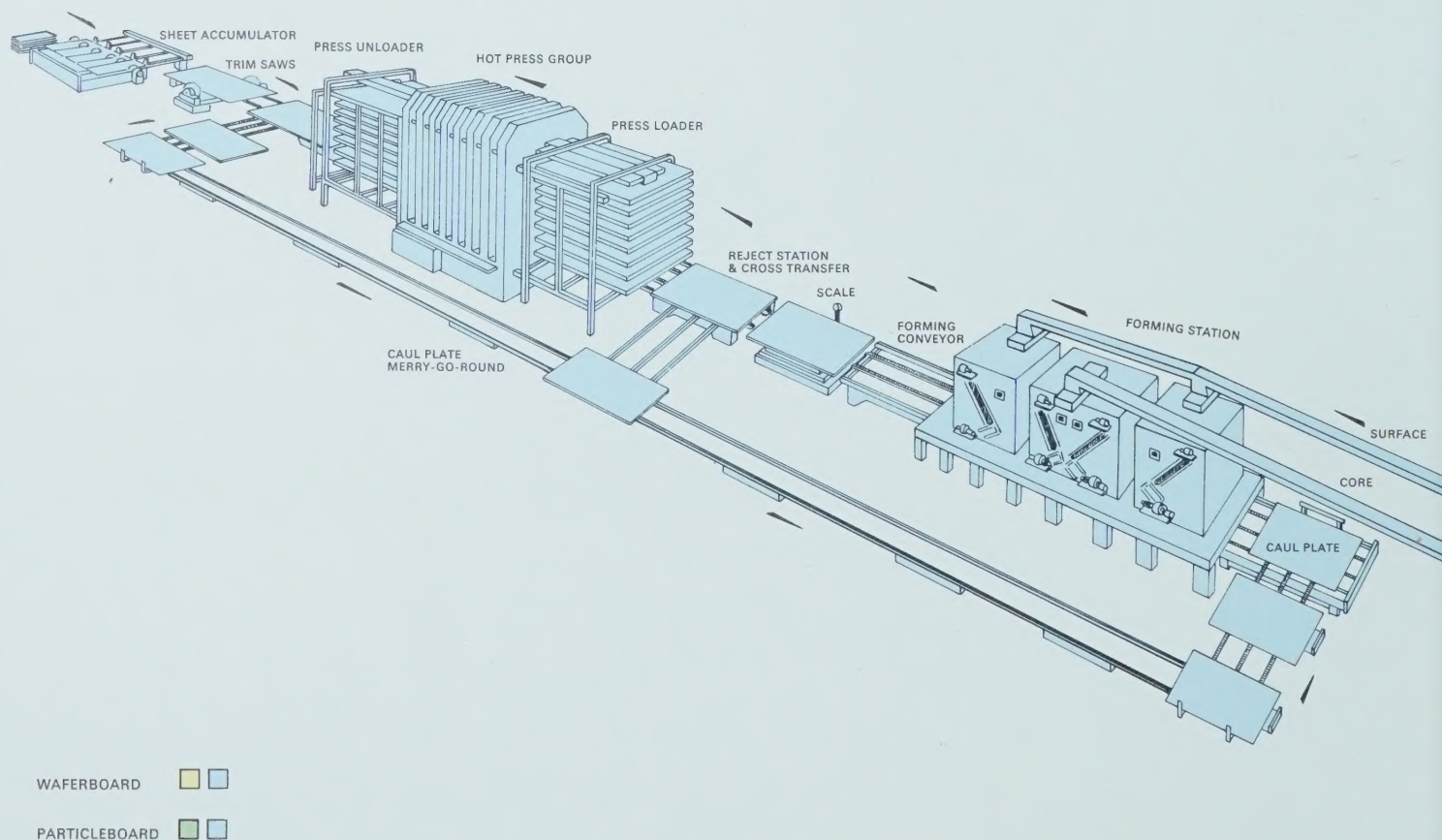
and surface lines to the forming station. The diagram shows how the surface wafers reach the two outside forming units while the core wafers enter the centre forming unit which has a double feed system. The forming operation spreads the wafers evenly in three layers (surface, core and surface), called a mat, on a travelling caul plate as it moves under the forming station. The mat is carefully weighed on its way to the press loader. If it does not meet specifications, the mat is automatically rejected and the caul plate is transferred on a by-pass to the caul plate return conveyor. Wafers from the rejected mat are returned to the core section of the forming station.

Heat and Pressure Applied

The press loader stacks ten caul plates at a time with the accepted 20-by-8-foot mats and an operator directs the full load into the press which is capable of exerting up to 750 pounds per square inch pressure. Both heat and pressure are applied to meet customer specifications for the finished product. The finished waferboard, which can measure from ¼ to ¾-inch thick, is cut into 4-by-8-foot sheets, stacked, conditioned and then banded for shipping.

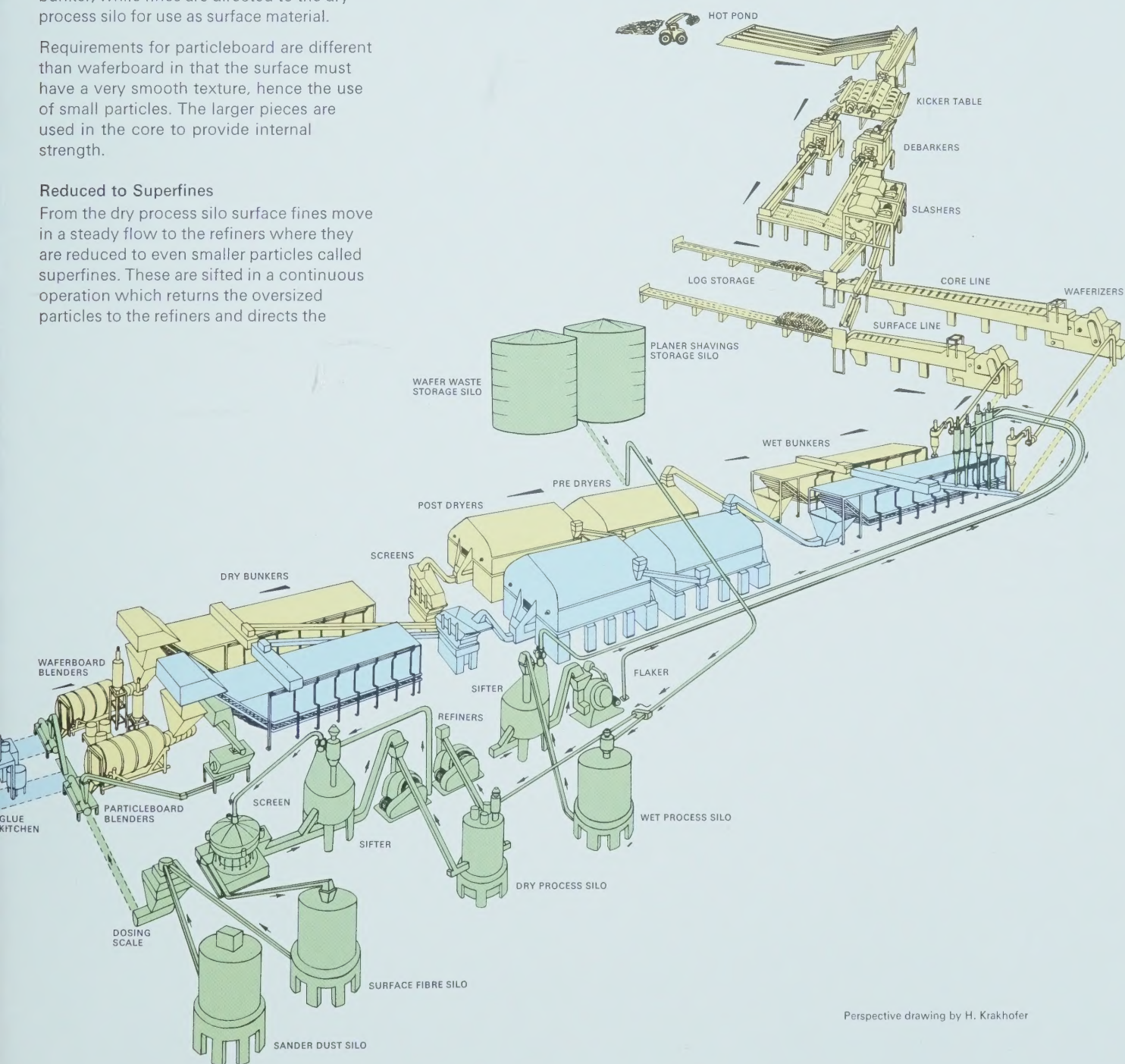
PARTICLEBOARD

Particleboard is manufactured mainly from planer shavings that result from stud lumber



The rest of the process follows the same course as the waferboard through the forming station, press etc., adjusted to meet the special requirements of particleboard. A final sanding operation takes place before the finished sheets are stacked and banded for shipping. Finished particleboard measures 4 by 8 feet and the thickness can vary from $\frac{3}{4}$ to 1 $\frac{1}{2}$ inches depending on customer requirements.

From the dry process silo surface fines move in a steady flow to the refiners where they are reduced to even smaller particles called superfines. These are sifted in a continuous operation which returns the oversized particles to the refiners and directs the



Perspective drawing by H. Krakhofer

